Chloral Hydrate, NTP TR 503 A-1 TABLE A4 Summary of the Incidence of Nonneoplastic Lesions in Ad Libitum-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate a

	Vehicle Control	25 mg/kg	50 mg/kg	100 mg/kg
Disposition Summary Animals initially in study	60	60	60	60
15-Month interim evaluation Early deaths Moribund	12	12 4	12 2	12 1
Natural deaths Survivors	6	7	10	3
Terminal sacrifice	42	37	36	44
Animals examined microscopically	60	60	60	60
15-Month Interim Evaluation				
Alimentary System				
Liver	(12)	(12)	(12)	(12)
Fatty change, focal, peripheral	2 (17%)	7 (58%)		
Fatty change, peripheral Granuloma, multiple	3 (25%)		7 (58%)	7 (58%)
Vacuolization cytoplasmic, centrilobular	9 (75%)	5 (42%)	6 (50%)	4 (33%)
2-Year Study				
Alimentary System				
Esophagus	(47)	(11)	(11)	(48)
Autolysis	4 (9%)		1 (9%)	1 (20/)
Polyarteritis Gallbladder	(43)	(10)	(10)	1 (2%) (44)
Autolysis	2 (5%)	4 (40%)	6 (60%)	1 (2%)
Crystals, epithelium	1 (2%)	1 (1070)	0 (0070)	1 (270)
Cyst			1 (10%)	
Fibrosis				2 (5%)
Inflammation, chronic, serosa Intestine large, cecum	(41)	(5)	(4)	1 (2%) (46)
Autolysis	(41)	(3)	(4)	1 (2%)
Hyperplasia, lymphoid				1 (2%)
Polyarteritis				1 (2%)
Intestine large, colon	(41)	(5)	(4)	(46)
Autolysis Polyarteritis				1 (2%) 1 (2%)
Intestine large, rectum	(41)	(5)	(4)	(43)
Granuloma	1 (2%)	(0)	(-)	(12)
Polyarteritis				1 (2%)
Intestine small, duodenum	(41)	(7)	(4)	(46)
Autolysis Intestine small, ileum	(42)	1 (14%) (5)	(5)	1 (2%) (46)
Autolysis	(74)	(3)	(5)	1 (2%)
Intestine small, jejunum Autolysis	(42)	(5)	(4)	(46) 1 (2%)

a Number of animals examined microscopically at the site and the number of animals with lesion

A-2 Chloral Hydrate, NTP TR 503

TABLE A4

Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate

	Vehicle Control		25 1	mg/kg	50 mg/kg		100	mg/kg
2-Year Study (continued)								
Alimentary System (continued)								
Liver	(48)		(48)		(47)		(48)	
Autolysis		(6%)		(4%)				(2%)
Basophilic focus		(6%)		(6%)		(2%)		(10%)
Clear cell focus		(2%)	1	(2%)		(6%)		(4%)
Clear cell focus, multiple	1	(2%)		2	(4%)	1	(2%)	
Congestion					1	(2%)		
Eosinophilic focus			1	(2%)	1	(2%)	1	(2%)
Fatty change, focal			1	(2%)				
Fibrosis, focal					1	(2%)		
Granuloma, multiple	1	(2%)			1	(2%)		
Hyperplasia, bile duct			1	(2%)				
Infarct			2	(4%)			2	(4%)
Infiltration cellular, lymphocytic	2	(4%)		· ·	1	(2%)	2	(4%)
Mixed cell focus			1	(2%)				
Necrosis, focal, hepatocyte					1	(2%)		
Necrosis, hepatocyte	1	(2%)	1	(2%)				
Necrosis, multifocal, hepatocyte	1	(2%)		· ·				
Regeneration, focal		` /	1	(2%)				
Vacuolization cytoplasmic, centrilobular	2	(4%)	1	(2%)	2	(4%)	4	(8%)
Pancreas	(46)		(10)	· ·	(9)	, ,	(48)	
Atrophy, acinar cell	, ,		. ,	(11%)	()		` ,	
Autolysis	4	(9%)		` /	2	(22%)	1	(2%)
Cyst, duct			1	(10%)				
Fibrosis			1	(10%)				
Polyarteritis				` /			1	(2%)
Salivary glands	(48)		(10)		(10)		(48)	
Autolysis		(10%)	` ,		` /		` ,	
Degeneration		(2%)						
Infiltration cellular, lymphocytic	9	(19%)	2	(20%)			10	(21%)
Stomach, forestomach	(43)	` /	(10)	` /	(10)		(46)	
Autolysis		(2%)	(- /		` '	(10%)	(- /	
Hyperkeratosis, focal		(2%)				(,-)		
Hyperplasia, squamous		(2%)						
Stomach, glandular	(43)		(10)		(10)		(46)	
Autolysis		(5%)	` /	(40%)	, ,	(50%)	(- /	
Inflammation, acute, submucosa		(2%)	-	(10,0)		(= 0,0)		
Inflammation, chronic, focal		(=,-,					1	(2%)
Polyarteritis								(2%)
Tongue	(47)		(10)		(11)		(47)	
Autolysis		(9%)	(10)		` '	(9%)	(.,,	
Polyarteritis						(***)	1	(2%)
Cardiovascular System Blood vessel	(48)		(11)		(11)		(48)	
Autolysis, aorta	` /	(6%)	(-1)		(11)		(.0)	
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Chloral Hydrate, NTP TR 503 A-3 TABLE A4 Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study

of Chloral Hydrate

Vehicle Control 25 mg/kg 50 mg/kg 100 mg/kg 2-Year Study (continued) Cardiovascular System (continued) Heart (48)(11)(11) (48)3 (6%) 1 (9%) Autolysis Cardiomyopathy 1 (2%) 1 (2%) Congestion 1 (9%) Hemorrhage, myocardium 1 (9%) Polyarteritis 1 (2%) **Endocrine System** Adrenal gland, cortex (45) (11) (10)(46)2 (18%) 4 (9%) Autolysis 2 (20%) 1 (2%) 1 (2%) Cyst, unilateral 1 (2%) Cytologic alterations 1 (2%) Cytoplasmic alteration 4 (9%) 2 (18%) 5 (11%) Degeneration, focal, unilateral 1 (2%) 6 (13%) 1 (10%) 4 (9%) Hyperplasia 3 (30%) 27 (59%) Hyperplasia, spindle cell 24 (53%) 7 (64%) Hypertrophy 2 (4%) Adrenal gland, medulla (45) (11)(10)(45)Autolysis 3 (7%) 1 (10%) 1 (2%) Hyperplasia 1 (2%) Parathyroid gland (47) (6) (6) 4 (9%) Autolysis 1 (17%) Cyst 1 (2%) Pituitary gland (42)(10)(46)1 (11%) Autolysis 3 (7%) 2 (20%) 1 (2%)

Cyst	2	(5%)						1	(2%)
Hyperplasia, focal, pars distalis	1	(2%)							
Thyroid gland	(47)		(11)		(10)			(48)	
Autolysis	4	(9%)			3	(30%)			
Cyst, follicle	5	(11%)	1	(9%)				3	(6%)
Polyarteritis									(2%)
General Body System									
None									
Genital System									
Coagulating gland	(46)		(10)		(10)			(48)	
Autolysis	3	(7%)	1	(10%)	2	(20%)			
Distended					1	(10%)		1	(2%)
Inflammation, chronic active					1	(10%)			
Epididymis	(46)		(10)		(11)			(48)	
Autolysis	3	(7%)	1	(10%)	2	(18%)	1	(2%)	
Granuloma sperm	1	(2%)						2	(4%)
Granuloma, unilateral									(2%)
Infiltration cellular, lymphocytic								1	(2%)
Inflammation, chronic active					1	(9%)			
Inflammation, chronic	1	(2%)							
Polyarteritis								1	(2%)
•									

A-4 Chloral Hydrate, NTP TR 503

TABLE A4

Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate

	Vehicle	Vehicle Control 25 mg/kg		mg/kg	50 mg/kg		100 mg/kg		
2-Year Study (continued)									
Genital System (continued)									
Penis						(1)			
Concretion						(-)	1	(100%)	
Inflammation, acute								(100%)	
Preputial gland	(46)		(10)	(11)		(48)		(/	
Abscess	` /		1	(10%)		` '			
Atrophy	15	(33%)		(40%)	6 (55%)	21	(44%)		
Autolysis		(7%)		,		(9%)	` '		
Cyst	1	(2%)			1	(9%)	3	(6%)	
Dilatation	1	(2%)					1	(2%)	
Ectasia, duct			2	(20%)	5	(45%)	2	(4%)	
Inflammation, acute, unilateral							1	(2%)	
Inflammation, chronic, unilateral	1	(2%)							
Inflammation	1	(2%)							
Prostate	(46)		(10)		(11)		(48)		
Atrophy	2	(4%)					3	(6%)	
Autolysis	3	(7%)			3	(27%)			
Congestion					1	(9%)			
Ectasia, focal					1	(9%)			
Inflammation, acute								(2%)	
Inflammation, focal								(2%)	
Polyarteritis								(2%)	
Seminal vesicle	(46)		(11)		(14)		(48)		
Atrophy		(2%)						(4%)	
Autolysis	3	(7%)	1	(9%)		(14%)	1	(2%)	
Depletion					1	(7%)			
Dilatation	1	(2%)					1	(2%)	
Distended			1	(9%)		(21%)			
Inflammation, chronic active					1	(7%)			
Inflammation, chronic								(2%)	
Polyarteritis, unilateral								(2%)	
Testes	(45)	(20)	(11)		(10)		(48)		
Atrophy, unilateral		(2%)		(0.01)		(2004)		(20)	
Autolysis		(7%)	1	(9%)	3	(30%)	1	(2%)	
Degeneration, bilateral	1	(2%)						(20()	
Hyperplasia, unilateral, interstitial cell							1	(2%)	
Hematopoietic System									
Bone marrow	(47)		(10)		(10)		(48)		
Autolysis		(6%)	` '/		(- /		` -/		
Hyperplasia		(2%)	2	(20%)	2	(20%)	4	(8%)	
Lymph node	(48)	* /	(15)	. /	(17)		(48)		
Granuloma, inguinal	` '	(2%)	` - /		(' ')		` -/		
Lymph node, mandibular	(48)		(10)		(9)		(45)		
Autolysis	. ,	(8%)	, ,		. ,		. /		
Hyperplasia							1	(2%)	
Inflammation, chronic			1	(10%)					

Chloral Hydrate, NTP TR 503 A-5 TABLE A4 Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate

	Vehicle Control	25 mg/kg	50 mg/kg	100 mg/kg
2-Year Study (continued) Hematopoietic System (continued)				
Lymph node, mesenteric	(47)	(13)	(16)	(48)
Angiectasis, focal Autolysis	5 (11%)		1 (6%)	
Congestion Degeneration Granuloma	4 (9%)	4 (31%)	1 (6%) 5 (31%) 1 (6%)	1 (2%) 5 (10%)
Hematopoietic cell proliferation Hemorrhage	1 (2%) 1 (2%)			1 (2%)
Hyperplasia Polyarteritis, artery	1 (2%)		1 (6%)	4 (8%) 1 (2%)
Spleen Angiectasis, focal	(47)	(16)	(17) 1 (6%)	(48)
Apoptosis, lymphocyte Atrophy, lymphocyte		1 (6%) 3 (19%)	1 (6%)	2 (4%)
Autolysis Congestion	4 (9%)	1 (6%)	2 (12%)	
Hematopoietic cell proliferation Hyperplasia, lymphoid	2 (4%) 3 (6%)	7 (44%)	2 (12%) 3 (18%)	7 (15%) 1 (2%)
Thymus Autolysis	(29) 3 (10%)	(6)	(4)	(35) 1 (3%)
Ectopic parathyroid gland		1 (17%)		
Integumentary System Mammary gland Autolysis Skin Autolysis	(5) 2 (40%) (48) 4 (8%)	(10)	(2) (10) 1 (10%)	(48)
Granuloma	1 (2%)		1 (10%)	
Musculoskeletal System				
Bone, femur Autolysis	(46) 3 (7%)	(11)	(12)	(48)
Bone, sternum	(47)	(11)	(12)	(48)
Autolysis Fibrous osteodystrophy Polyarteritis	3 (6%) 4 (9%)			2 (4%) 1 (2%)
Skeletal muscle Autolysis Infiltration cellular, lymphocytic	(47) 4 (9%)	(10)	(11) 1 (9%)	(48) 1 (2%)
Mineralization, focal Polyarteritis	1 (2%)			2 (4%)
Nervous System	(47)	(10)	(0)	(40)
Brain, cerebellum Autolysis	(47) 4 (9%)	(10) 1 (10%)	(9)	(48) 1 (2%)
Brain, cerebrum	(47)	(10)	(9)	(48)
Autolysis Hydrocephalus	4 (9%)	1 (10%)		1 (2%) 1 (2%)
Mineralization, thalamus	25 (53%)	2 (20%)	1 (11%)	14(29%)

A-6 Chloral Hydrate, NTP TR 503

TABLE A4

Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate

	Vehicle Control	25 mg/kg	50 mg/kg	100 mg/kg
2-Year Study (continued) Nervous System (continued) Peripheral nerve Autolysis Degeneration Demyelination Infiltration cellular, lymphocytic Spinal cord	(47) 4 (9%) 2 (4%) 1 (2%) 1 (2%) (47)	(10)	(11) 1 (9%) (9)	(48) 1 (2%)
Autolysis	4 (9%)	1 (10%)	,	1 (2%)
Respiratory System Larynx Autolysis Polyarteritis	(46) 4 (9%)	(11)	(11) 1 (9%)	(47) 1 (2%)
Lung Atelectasis Autolysis Congestion Dilatation, bronchiole, glands	(48) 3 (6%) 1 (2%)	(20)	(16) 1 (6%) 1 (6%) 1 (6%)	(48)
Hemorrhage, focal, alveolus Hyperplasia, alveolar epithelium Infiltration cellular, lymphocytic Inflammation, chronic active Polyarteritis	4 (8%)	1 (5%) 1 (5%)	1 (6%)	2 (4%) 2 (4%) 1 (2%)
Nose Autolysis Trachea Autolysis Dilatation, glands	(47) 4 (9%) (47) 4 (9%) 1 (2%)	(11) (10)	(12) 1 (8%) (11) 1 (9%)	(48)
Special Senses System				
Eye Autolysis Cataract, lens Polyarteritis	(46) 3 (7%)	(11) 1 (9%)	(11) 2 (18%)	(48) 1 (2%)
Harderian gland Atrophy, focal, unilateral Autolysis Hyperplasia, diffuse, unilateral	(47) 1 (2%) 4 (9%)	(16)	(12) 1 (8%)	(47)
Hyperplasia, focal, bilateral Hyperplasia, focal, unilateral Hyperplasia, unilateral Hyperplasia, papillary, unilateral	1 (2%) 1 (2%)	1. (60)	2 (179)	1 (2%) 1 (2%) 1 (2%) 1 (2%)
Infiltration cellular, lymphocytic Lacrimal gland Atrophy, focal Autolysis Cytoplasmic alteration	5 (11%) (47) 1 (2%) 5 (11%)	1 (6%) (10)	2 (17%) (10)	(46) 1 (2%)
Infiltration cellular, lymphocytic Zymbal's gland Autolysis	(45) 2 (4%)	(9)	(7)	2 (4%) (48)

Chloral Hydrate, NTP TR 503 A-7
TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in *Ad Libitum*-Fed Male Mice in the 2-Year Gavage Study of Chloral Hydrate

	Vehicle Control		25 mg/kg		50 mg/kg		100	mg/kg
2-Year Study (continued)								
Urinary System								
Kidney	(46)		(10)		(10)		(48)	
Accumulation hyaline droplet, renal tubule			2	(20%)				
Angiectasis							1	(2%)
Autolysis	5	(11%)	1	(10%)	4	(40%)	1	(2%)
Congestion					1	(10%)		
Cyst, renal tubule	5	(11%)					3	(6%)
Degeneration, renal tubule	5	(11%)					3	(6%)
Glomerulosclerosis	2	(4%)	4	(40%)	1	(10%)	10	(21%)
Hydronephrosis					2	(20%)		
Infarct, unilateral	2	(4%)	1	(10%)			1	(2%)
Infiltration cellular, lymphocytic					1 (10%)	3	(6%)	
Inflammation, chronic	1	(2%)						
Mineralization, renal tubule	4	(9%)	1	(10%)				(6%)
Nephropathy	6	(13%)			1	(10%)	3	(6%)
Regeneration, renal tubule	11	(24%)					7	(15%)
Vacuolization cytoplasmic, bilateral,								
renal tubule	1	(2%)						
Urinary bladder	(46)		(10)		(11)		(48)	
Autolysis	3	(7%)			3	(9%)		
Infiltration cellular, lymphocytic	4	(9%)						
Inflammation, acute							1	(2%)